

ABSTRACT

COMPARISON OF THE CORNEAL EPITHELIAL LAYERS AFTER TIMOLOL 0.50% ADMINISTRATION WITH AND WITHOUT BENZALKONIUM CHLORIDE 0.01% AS PRESERVATIVE

(Experimental Study on *Oryctolagus cuniculus*)

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Objective: to compare the amount of corneal epithelial layers after topical timolol 0.50% administration with and without BAC 0.01% as preservative on rabbit's (*Oryctolagus cuniculus*) cornea for 14 days. **Method:** this is an experimental study on 16 eyes of 8 healthy white male rabbit (*Oryctolagus cuniculus*) weighing between 2.5 – 3 kgs, separated into two groups, group 1 with 8 eyes received 2 drops of BAC preserved timolol 0.50% daily for 14 days. And group 2 with 8 eyes received 2 drops of unpreserved timolol daily for 14 days. At the end of the study all groups was sacrificed, dissected, and processed for histological studies. One additional rabbit without any exposure was sacrificed as a control. **Result:** there were 7 evaluable rabbit by the 14th days of the experiment (14 eyes). Corneal histopathology examination was performed on the 14th day after drug exposure, the mean corneal epithel cell layer was 3 layer (2.71) on sample exposed to timolol 0.50% eyedrop containing BAC 0.001% preservative, and 6 layers (5.86) on sample exposed to timolol 0.50% eyedrop without preservative. Whereas the amount of normal epithel cell layer in rabbit that did not received any drug exposure was 6 layers. **Conclusions:** exposure to BAC led to rabbit's corneal degeneration, corneal sections of group 1 revealed an irregular surface together with desquamation of some surface epithelial cells, it showed thinning of the epithelium that became 3 layers thick. Whereas on group 2 shows no differences compared to control (6 layers).
Keyword : Timolol, benzalkonium chloride, corneal epithelial layer